

# So Many Films, So Little Time

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“TIFF”, The Toronto International Film Festival, is an annual event, screening a huge variety of new films for the international film industry as well as the general public. The number of choices means selecting which films to order tickets for can be overwhelming. I suffer the occupational hazard of considering every logic problem in terms of SAS® code. Here we explore how to use some very simple code to explore scheduling options, which will support decision-making with the goal of seeing the most films from a priority list in the most enjoyable way. While many of us use SAS for efficiency in our work, this is a small example of how it can also be beneficial for personal time.

# Background

- ⦿ TIFF keeps growing to include more films at more venues over 11 consecutive days each year which can make scheduling and ticket selection for a casual film-goer overwhelming.
- ⦿ Films are scheduled beginning at 8:30 or 9:00 AM and continuing through to Midnight Madness.
- ⦿ With luck, good timing and the sacrifice of comforts like regular meals, sleep and exposure to daylight, it is possible – but not wise – to attend up to 6 screenings per day.
- ⦿ The ticket acquisition process is a complex one, with many steps, many decisions, lots of waiting and then a window of just one hour to finalize the ticket order.
- ⦿ Careful planning and preparation for tickets was required days and weeks before the lights were dimmed for the first screening.

# The Challenge

# Getting from here..

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There were many factors to consider before deciding which screenings to order tickets for.

- Did it make sense to see one film at 9:00 AM and another at 11:30 AM?
- Would there be a Q&A session following the screening?
- How long would it take to travel between venues?
- How would we decide how to decide on which films to see?

With an amazing selection of films, ten passes per person to user for tickets over the 11 days, some assumptions about film duration, travel time and essential breaks, we looked at how SAS could help make ticket selection and ordering easier.

There is no one correct solution to this challenge and no one way to measure a successful experience at the festival.

# Tackling the Data

# Good data support good decisions!

- Data for all the screening dates and times were collected the festival website. Some simple data cleaning, formatting and classification was performed.
- Next, a formatted list of film titles was sent to participants in the group who would be sharing tickets to gather their preferences.
- Participant's preferences were gathered from Excel, IMPORTed into SAS, weighted, summarized and JOINed back to the full list.
- Screenings of distinct film titles were selected and slotted into an ARRAY whose elements corresponded with the morning, afternoon and evening of each day of the festival.
- By manipulating which of various screenings of films from the preference list were selected, we generated multiple schedule scenarios that would allow the participants to see films from the combined priority list.

After a lot of data preparation, here's the code used recursively to build schedule scenarios:

```
data SCHEDULE(keep=schedule:);
array schedule[11,3] $80;
retain;
set POSSIBILITIES end=last;
do i = 1 to 11;
  do j = 1 to 3;
    if film = schedule[i, j] then do;
      return;
    end;
  end;
end;
if schedule[FESTIVAL_DAY, SESSION] = " "
  and ticket_count < 10 then do;
  ** select this screening **;
  schedule[FESTIVAL_DAY, SESSION] = film;
  ticket_count +1;
end;
if last;
output;
run;
```

# Implementing the Plan

- Optimal enjoyment is highly subjective, so the program was used to identify multiple schedule scenarios for manual review.
- The day before our randomly assigned hour for access to the ticketing system, TIFF was trending on Twitter. There was lots of excitement about the festival -- along with comments about some of the popular films that were Off Sale already. So, we needed the flexibility to make some quick last-minute decisions during the ticket ordering hour based on real-time information about which screenings were still available.
- When the magic hour arrived to place the ticket order, many of the premier screenings were not available. With carefully organized data and the ability to exclude the unavailable screenings and generate alternate scenarios within seconds using SAS, an hour was more than enough time to consider various scheduling alternatives and find subsequent screenings of our priority film choices to satisfy our preferences and still have a reasonable and convenient schedule.

54 TIFF.NET/FESTIVAL		9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	12:00 AM
SATURDAY SEPT. 8	Roy Thomson Hall						1:30 PM - 3:49 PM <b>THERMAE ROMAE</b> H. Takeuchi, JPN GALA PG pg. 59	PREMIUM				6:30 PM - 9:00 PM <b>SILVER LININGS PLAYBOOK</b> D. O. Russell, USA GALA 14A pg. 61	PREMIUM		9:30 PM - 12:08 PM <b>THE RELUCTANT FUNDAMENTALIST</b> M. Nair, IND/PAK/USA GALA PG pg. 63	PREMIUM	
	Princess of Wales						2:30 PM - 4:31 PM <b>HOTEL TRANSYLVANIA</b> G. Tartakovsky, USA KID PG pg. 365				6:00 PM - 9:14 PM <b>CLOUD ATLAS</b> A. Wachowski, L. Wachowski, T. Tykwer, GER SP 14A pg. 113	PREMIUM		9:45 PM - 12:04 AM <b>END OF WATCH</b> D. Ayer, USA SP 14A pg. 149	PREMIUM		
	VISA Screening Room (Elgin Theatre)			11:00 AM - 1:22 PM <b>ARGO</b> B. Affleck, USA GALA 14A pg. 55		2:30 PM - 4:47 PM <b>MUCH ADO ABOUT NOTHING</b> J. Whedon, USA SP PG pg. 155	PREMIUM			6:00 PM - 8:37 PM <b>AMOUR</b> M. Haneke, AUT/FRA/GER MAST, 14A pg. 97			9:00 PM - 11:30 PM <b>SOMETHING IN THE AIR</b> O. Assayas, FRA MAST 14A pg. 102				
	Winter Garden Theatre			12:00 PM - 1:56 PM <b>FRANCES HA</b> N. Baumbach, USA SP 14A pg. 169			4:30 PM - 6:58 PM <b>EVERYBODY HAS A PLAN</b> A. Piterberg, ARG/ESP/GER SP 14A pg. 134			8:00 PM - 10:30 PM <b>THE LAST SUPPER</b> Lu C., CHN SP PG pg. 171							
	Ryerson Theatre		11:00 AM - 1:50 PM <b>THE PLACE BEYOND THE PINES</b> D. Cianfrance, USA SP 14A pg. 114		2:30 PM - 5:36 PM <b>WEST OF MEMPHIS</b> A. Berg, USA MAV PG pg. 199	PREMIUM		6:15 PM - 8:28 PM <b>THE PERKS OF BEING A WALLFLOWER</b> S. Chbosky, USA SP 14A pg. 139		9:00 PM - 11:20 PM <b>THANKS FOR SHARING</b> S. Blumberg, USA SP 18A pg. 170	PREMIUM		11:59 PM - 1:55 AM <b>NO ONE LIVES</b> R. Kitamura, USA MM 18A pg. 439				
	Bloor Hot Docs Cinema	9:00 AM - 11:05 AM <b>REINCARNATED</b> A. Capper, USA DOC 14A pg. 267		12:00 PM - 1:47 PM 9.79* D. Gordon, UK DOC G pg. 249		3:00 PM - 5:10 PM <b>IMOGENE</b> R. Pulcini, S. Springer Berman, USA SP 14A pg. 146		6:00 PM - 8:10 PM <b>PAINLESS</b> J. Carlos Medina, ESP/FRA/POR VAN 14A pg. 427		9:00 PM - 11:38 PM <b>LONDON - THE MODERN BABYLON</b> J. Temple, UK DOC PG pg. 243							
	Isabel Bader Theatre	9:15 AM - 11:45 AM <b>PARADISE: LOVE</b> U. Seidl, AUT/GER/FRA CWC 18A pg. 284		12:15 PM - 2:55 PM <b>ANNA KARENINA</b> J. Wright, UK SP 14A pg. 130		3:30 PM - 5:40 PM <b>THE BRASS TEAPOT</b> R. Mosley, USA DISC PG pg. 229		6:30 PM - 8:50 PM <b>NIGHT ACROSS THE STREET</b> R. Ruiz, FRA/CHI MAST 14A pg. 109		9:45 PM - 11:37 PM <b>MUMBAI'S KING</b> M. Singh, IND CTC PG pg. 381							
	Jackman Hall (AGO)			1:00 PM - 3:20 PM <b>TABU</b> M. Gomes, POR/GER/BRA/FRA WL 14A pg. 345		4:00 PM - 5:51 PM <b>DIFFERENTLY, MOLOSSIA</b> N. Rey, FRA WL 14A pg. 350		7:00 PM - 9:03 PM <b>THE GIRL FROM THE SOUTH</b> J. Garcia, ARG DOC PG pg. 262		10:00 PM - 11:08 PM <b>WAVELENGTHS 2: DOCUMENTA</b> WL PG pg. 342							
	TIFF Bell Lightbox 1			12:45 PM - 2:48 PM <b>WHAT MARGIE KNEW</b> D. Siegel, S. McGehee, USA GALA 14A pg. 57		3:15 PM - 6:15 PM <b>THE MASTER</b> P. Anderson, USA SP 14A pg. 121		6:45 PM - 9:01 PM <b>EVERDAY</b> M. Winterbottom, UK MAST 18A pg. 108		9:45 PM - 11:37 PM <b>A LIAR'S AUTOBIOGRAPHY: THE UNTRUE STORY OF MONTY PYTHON'S GRAHAM CHAPMAN</b> B. Jones, B. Timlett, J. Simpson UK SP PG pg. 159							
	TIFF Bell Lightbox 2			11:45 AM - 2:03 PM <b>STORIES WE TELL</b> S. Polley, CAN SP 14A pg. 175		3:00 PM - 5:00 PM <b>SATELLITE BOY</b> C. McKenzie, AUS DISC PG pg. 227		6:00 PM - 8:30 PM <b>INCH'ALLAH</b> A. Barbeau-Lavalette, CAN SP 18A pg. 178		9:00 PM - 11:12 PM <b>THE ATTACK</b> Z. Doueiri, LIB/FRA/QAT/EGY/BEL SP 14A pg. 161							
	TIFF Bell Lightbox 3			12:45 PM - 2:45 PM <b>IGOR &amp; THE CRANES' JOURNEY</b> E. Ruman, ISR/POL/GER KID PG pg. 368		3:15 PM - 5:29 PM <b>BLANCANIEVES</b> P. Berger, ESP/FRA DISC PG pg. 210		6:30 PM - 8:40 PM <b>THE LEBANESE ROCKET SOCIETY</b> J. Hadjithomas, K. Joreige FRA/LIB/UEA/QAT WL PG pg. 357		9:30 PM - 11:40 PM <b>WATCHTOWER</b> P. Esmer, TUR/GER/FRA CWC 14A pg. 279							
	TIFF Bell Lightbox 4			1:15 PM - 3:01 PM <b>SHORT CUTS CANADA: PROGRAMME #1</b> SCC 14A pg. 389		3:45 PM - 5:35 PM <b>BITTER ASH</b> L. Kent, CAN CTQ PG pg. 405	FREE	6:15 PM - 8:11 PM <b>SHORT CUTS CANADA: PROGRAMME #2</b> SCC 14A pg. 391		9:15 PM - 11:15 PM <b>THE CREMATOR</b> Peng T., CHN CWC 14A pg. 321							
CWS		extended Q&A which may run up to 40 minutes past the end-time of the film								FREE		first-come, first-served ticketed free screening		PREMIUM		red carpet premiere	

# Lessons Learned

- ⦿ It's helpful to have a flexible schedule and an open mind during the festival. Some of the most meaningful moments were unanticipated: Sticking around for an informal Q&A session with the producers, writers, directors or stars and hearing them explain their thought process. Because some of these screenings were world premieres, it was especially poignant to hear feedback from the audience and how one of the directors had an epiphany during the Q&A when he tried to explain the background for a character and suddenly realized that the scene portraying that background had been cut.
- ⦿ Be prepared during the ticket selection process AND during the Festival: Carry a bottle of water and some non-perishable food and dress for possible weather changes outdoors during line-ups and for temperature variations inside theatres.
- ⦿ Although most people who order blocks of festival tickets are using scribbled notes as their decision support, there is much to be gained with a bit of technology. Using Excel to manage the contents of the tables would have been a good step; it's one that is available to people who don't have SAS, but the ease of joining tables, selecting distinct rows and being able update and store results scenarios very quickly made SAS an advantage.

# Conclusions

- ⦿ Being prepared at all stages from ordering passes through attending the films made the whole process less daunting and more enjoyable.
- ⦿ There are lots of other ways to select tickets and have a thoroughly enjoyable experience, but running some very simple SAS code to generate and report on different schedule combinations was a great confidence-builder for the intense decision-making process required to order tickets. An automated approach also supported a fair selection to satisfy all participants in the group.
- ⦿ Repeated waiting and line-ups mean the festival is only for the patient, but overall it was a very positive experience.

# Contact

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